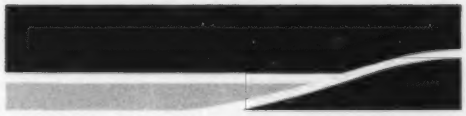
# Ninth Annual Report 1982-1983

# MACHINERY INSTITUTE



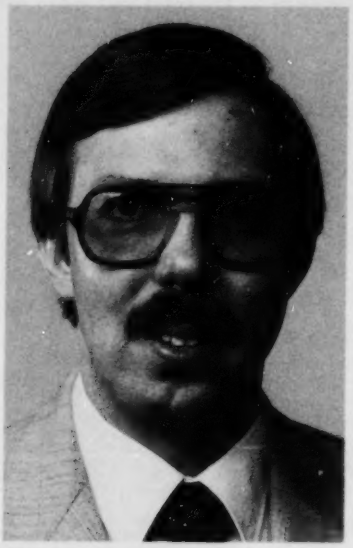
PRAIRIE AGRICULTURAL MACHINERY INSTITUTE

84- 4085 /

## THE PRAIRIE AGRICULTURAL MACHINERY INSTITUTE

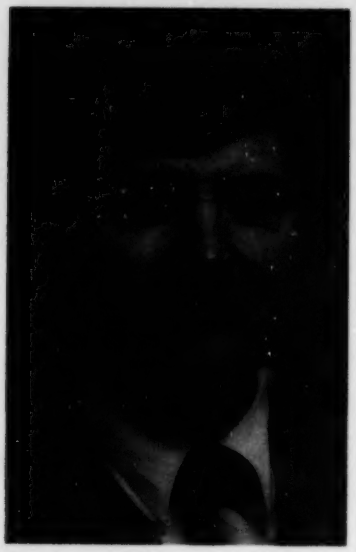
*"to improve the design and aid in the selection and use of agricultural machinery in the prairie provinces"*

To achieve this goal, the provinces of Alberta, Manitoba and Saskatchewan established the Prairie Agricultural Machinery Institute as a unique resource to the farmers and agricultural machinery manufacturers of the prairies. Since its inception October 10, 1974, programs to provide for the evaluation and development of agricultural machines, for research into matters concerning agricultural machines and for the extension of information on agricultural machines have been the primary concern of the Machinery Institute.



**Honourable**
**Lorne Hepworth**
Minister of Agriculture
Province of Saskatchewan

**Honourable**
**LeRoy Fjordbotten**
Minister of Agriculture
Province of Alberta



**Honourable**
**Bill Uruski**
Minister of Agriculture
Province of Manitoba

## MEMBERS OF COUNCIL

Name

CHAIRMAN
G. Nystuen
Spalding, Saskatchewan

COUNCILLORS
G. Blanchard
Bow Island, Alberta

J. Enns
Oak Bluff, Manitoba

R. S. Forrest
Alberta Agriculture
Edmonton, Alberta

G. Laliberte
University of Manitoba
Winnipeg, Manitoba

T. L. Pringle
Manitoba Dept. of Agriculture
Winnipeg, Manitoba

A. Burghardt
Versatile Noble Cultivators Co.
Nobleford, Alberta

L. Masur
Nokomis, Saskatchewan

B. Nicholson
Shoal Lake, Manitoba

M. Westby
Watrous, Saskatchewan

SECRETARY
D. M. Gardiner, Director
Prairie Agricultural Machinery Institute
Humboldt, Saskatchewan

## Letter of Transmittal

Regina, Saskatchewan
March 1983

His Honour F. W. Johnson, Q.C.
Lieutenant Governor
Province of Saskatchewan

May It Please Your Honour:

Pursuant to Section 19(1) and (2) of the Prairie Agricultural Machinery Institute Act, R.S.S. 1978, I respectfully submit, for your consideration, the Annual Report of the Prairie Agricultural Machinery Institute for the fiscal year ending March 31, 1983.

Your obedient servant,

Lorne H. Hepworth
Minister of Agriculture
Province of Saskatchewan

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## Letter of Transmittal

Humboldt, Saskatchewan
March 1983

**Honourable Lorne Hepworth**
Minister of Agriculture
Province of Saskatchewan

**Honourable LeRoy Fjordbotten**
Minister of Agriculture
Province of Alberta

**Honourable Bill Uruski**
Minister of Agriculture
Province of Manitoba

Sirs:

It is my honour to present the Annual Report and audited financial statements of the Prairie Agricultural Machinery Institute for the fiscal year ending March 31, 1983.

Respectfully submitted,

G. Nystuen, Chairman
Prairie Agricultural
Machinery Institute Council

# THE MACHINERY INSTITUTE

MACHINERY INSTITUTE

The Head Office of the Machinery Institute is located separate from, but on the same premises as, the Humboldt, Saskatchewan, testing station. Similar test stations are located at Lethbridge, Alberta and Portage la Prairie, Manitoba.

Farmer, manufacturer, implement dealer, university and government representatives are members of the Council. Under their direction, extensive evaluation, development, research and extension programs are carried out in each of the three prairie provinces.

Evaluation programs are established through user contacts, knowledge of new technology applications, problem reports and farmer surveys. Development and technical support programs arise as a result of direct contact with prairie manufacturers. Research programs develop as follow-ups to our machinery evaluation programs and to federal and provincial agency investigations. Extension programs to disseminate findings follow as a logical denouement to all prior activities.

Real world testing by technical operators with farm background and advanced engineering techniques is the basis for an extensive program of evaluations. Field testing of most machines is completed during normal farming months followed by results analysis and technical report preparation during the rest of the year. Up to 60 reports are prepared each year depending upon the complexity of the individual programs undertaken.

Through the Institute, smaller prairie manufacturers have access to the development engineering technical resources which larger, major manufacturers have in-house. This access, on a specific contract basis, spans only the time required. It provides sophisticated technology with highly trained engineers and technicians not normally affordable to small firms at only a fraction of in-house costs.

Findings of the Institute are broadly disseminated through its 15,000 prairie, national and international subscribers as well as through available communications media such as radio and TV, seminars, workshops, scientific and technical meetings and conventions, displays at fairs and shows, through printed media releases, etc.

Each year farm machinery becomes more costly and complex. The farmer's need for cost-effectiveness makes the work of the Machinery Institute more necessary and the results more propitious.

**Tandem Disk Evaluation**

**Round Bale Wagon Evaluation**

# EVALUATION

MACHINERY INSTITUTE

Evaluation by the Machinery Institute determines how well agricultural machinery does the job for which it was designed. To determine this performance, a combination of laboratory testing and specialized field trials are performed. Before and after field operation, laboratory testing, which can be done year round, is undertaken. Machines are tested and instrumented in the shop and then are field operated during the appropriate prairie planting, growing and harvesting seasons. Crews from all three stations operate in all parts of the prairie provinces wherever crop and field conditions necessary for comprehensive testing can be found.

In the 1982-83 fiscal year, the Institute staff worked on the evaluation of 82 different machines, either new projects or projects continuing from prior seasons. Twenty-four reports were published and distributed to subscribers during 1982-83. Since its first publication in 1976, the Machinery Institute has distributed 299 technical reports.

A summary, by equipment type, of the distribution of machines evaluated during 1982-83 and in total since 1976 is show below:

| Machine Type | April 1, 1982 - March 31, 1983 | 1976 - March 31, 1983 |
|---|---|---|
| Drying, grading & storage | 9% | 2% |
| Farmstead | 5% | 10% |
| Fertilizing & irrigating | 2% | 1% |
| Harvesting | 20% | 25% |
| Livestock & dairy | 12% | 10% |
| Materials handling | 9% | 5% |
| Monitoring & control | 7% | 13% |
| Pest & weed control | 2% | 5% |
| Seeding | 15% | 10% |
| Tillage | 16% | 13% |
| Wagons & transporters | 3% | 6% |
| | 100% | 100% |

The machines evaluated during 1982-83 were as follows:

| | | | |
|---|---|---|---|
| Grain dryers | 7 | Tractor monitors | 2 |
| Portable alternators | 4 | Field sprayers | 1 |
| Irrigation systems | 2 | Sprayer nozzles | 1 |
| Balers | 4 | Grain drills | 3 |
| Forage harvesters | 2 | One-way disk harrows | 1 |
| Grain combines & attachments | 7 | Pneumatic seeders | 3 |
| | | Row crop planters | 5 |
| Windrowers & attachments | 3 | Tandem disks | 2 |
| | | Field & heavy duty cultivators | 2 |
| Heat exchangers | 2 | | |
| Stock medicators | 8 | Harrow packer drawbars | 2 |
| Pneumatic conveyors | 3 | | |
| Grain augers | 4 | Rock pickers | 1 |
| Grain auger movers | 1 | Rod weeders | 2 |
| Depth controls | 1 | Row crop cultivators | 5 |
| Sprayer monitors | 3 | Bale wagons | 1 |
| | | TOTAL | 82 |

Row crop cultivator evaluation

Weighing round bales

Combine loss tests

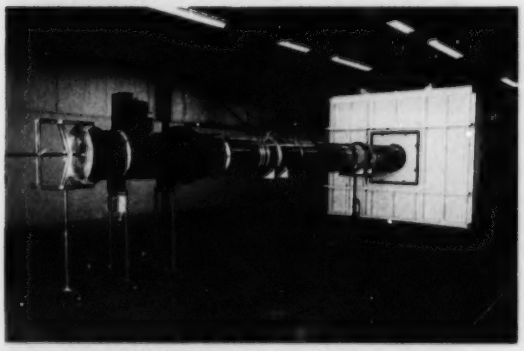
# DEVELOPMENT

MACHINERY INSTITUTE

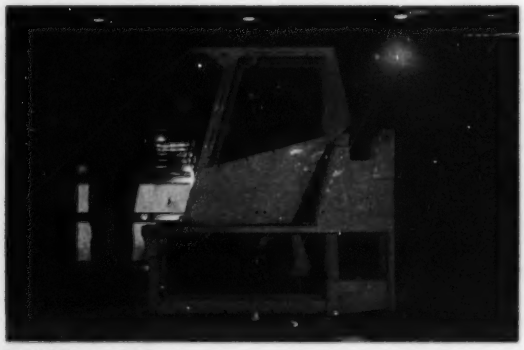
Manufacturers contract with the Machinery Institute to develop new and modified machines. They benefit from sophisticated technical facilities and experienced, knowledgeable, agricultural engineering personnel. The design of new machines, modifications to existing machines and the testing of prototype or pre-production machines to be marketed on the prairies are all part of the Machinery Institute's development services.

Development activity during 1982-83 centered around our expanded grain drying test facility, now one of the largest in North America. New equipment for testing aeration and ventilation fans to AMCA standards was installed. The rated capacity of the facility is up to 20,000 CFM. It is capable of testing propeller fans to 60 inch diameter, centrifugal and vaneaxial fans to 48 inch diameter and tubeaxial fans to 36 inch diameter. In-depth analyses of the economics of heat exchangers for manufacturers and a number of tillage projects and irrigation pump characteristic curve determinations were undertaken. As well, a series of official ROPS acceptance tests on cabs for agricultural vehicles were completed.

Twenty-seven development projects for prairie manufacturers were carried out in 1982-83 with 13 projects in progress at year end.



Fan test facility



ROPS structure

# RESEARCH

MACHINERY INSTITUTE

Often puzzling operational questions arise out of Institute work or that of other agencies. These lead the Machinery Institute to undertake applied research into matters concerning the performance of existing machines and into modifications or new ideas for prairie requirements.

Such research is usually carried out in conjunction with undertakings by universities, research councils or industry. It is common practice to combine the specialized attributes of scientific researchers with the practical knowledge and testing capabilities of Institute personnel.

For example, in 1982-83 research was carried out into the placement of seed using vented seed boots on air seeders. Similarily, during the year a project to assess the effectiveness of catch pans for the determination of combine losses was initiated, and also in 1982-83, a project to determine the true drying characteristics of grain was started. These latter programs are still in progress.

# EXTENSION

MACHINERY INSTITUTE

Dissemination of the information accrued over a season is a necessary adjunct to the yearly activities. The findings are useless unless there is knowledge of the availability of information and there is access to it on demand. Further, such information must be coordinated with representations by sister organizations and melded with generally accepted agricultural practices to provide an overall strategy for farm production.

Thus the Machinery Institute extension program is designed to bring the results of direct and peripheral activities to the attention of the ultimate user.

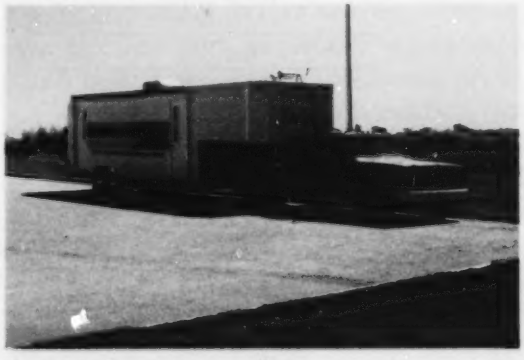
The official technical reports sent to all subscribers are only one of many ways of providing this extension service. The general public is kept informed through current interest articles inserted in widely read prairie publications, through radio and TV interviews and operation instruction programs, via demonstration booths at farm and trade shows and at workshops organized in cooperation with local agricultural representatives.

In addition, contacts are maintained with technical authorities in governments and industry through seminars, presentations to technical groups and publication of summary papers in agricultural journals.

In response to subscriber requests during 1982-83, a detailed review of our technical reports was undertaken. As a result the format was changed, the summary and conclusions were made more understandable and the text wording was softened to be more readable. We also changed back to Imperial measurements while still retaining SI (metric) as a secondary mensuration system.

CBC film crew

Trade show display



Portable extension trailer

Western Canada Farm Progress Show

## Prairie Agricultural Machinery Institute
## STATEMENT OF FINANCIAL POSITION
## March 31, 1983
(with comparative figures at March 31, 1982)

| ASSETS | 1983 | 1982 |
|---|---|---|
| Current: | | |
| Bank | $ 131,023 | $ — |
| Prepaid expenses | 26,770 | 75,294 |
| Short term investments, at cost | 618,421 | 999,265 |
| Accounts receivable | 101,221 | 57,254 |
| Travel advances | 4,700 | 2,700 |
| | 882,135 | 1,134,513 |
| Fixed: at cost | | |
| Assets under capital leases (Note 4) | 189,049 | — |
| Buildings | 2,649,205 | 2,564,055 |
| Equipment — for evaluation | 115,727 | 110,670 |
| Equipment | 1,503,384 | 1,302,565 |
| Land improvements | 361,203 | 347,309 |
| Furniture | 275,562 | 270,169 |
| Vehicles | 225,311 | 225,312 |
| Reference material | 12,970 | 12,970 |
| | 5,332,411 | 4,833,050 |
| | $6,214,546 | $5,967,563 |

| LIABILITIES AND EQUITY | 1983 | 1982 |
|---|---|---|
| Current Liabilities: | | |
| Bank overdraft | $ — | $ 102,659 |
| Accounts payable | 79,687 | 82,600 |
| Unearned subscription income | 45,466 | 44,865 |
| Obligations under capital lease | 26,013 | — |
| | 151,166 | 230,124 |
| Non-Current Liabilities: | | |
| Unearned subscription revenue | 110,245 | 101,654 |
| Less current portion | 45,466 | 44,865 |
| | 64,779 | 56,789 |
| Obligations under capital lease (Note 3) | 179,400 | — |
| Less current portion | 26,013 | — |
| | 153,387 | — |
| Equity: | | |
| Equity in fixed assets (Note 4) | 5,153,011 | 4,833,050 |
| Operating surplus (Statement 2) | 692,203 | 847,600 |
| | 5,845,214 | 5,680,650 |
| | $6,214,546 | $5,967,563 |

(See accompanying notes to the financial statements)

## Prairie Agricultural Machinery Institute
## STATEMENT OF OPERATIONS AND OPERATING SURPLUS
### Year Ended March 31, 1983
(with comparative figures for the 1982 year)

| Revenue: (Note 1) | 1983 | 1982 |
|---|---|---|
| Provincial grants | | |
| — Saskatchewan | $1,181,250 | $1,073,473 |
| — Alberta | 918,750 | 834,924 |
| — Manitoba | 525,000 | 477,099 |
| | 2,625,000 | 2,385,496 |
| Fees for service | 152,451 | 67,671 |
| Investment income | 147,794 | 295,201 |
| Other income | 19,160 | 24,036 |
| Sale of fixed assets | 28,035 | 54,444 |
| Subscription income | 82,850 | 78,043 |
| Total revenue | 3,055,290 | 2,904,891 |
| Expenditure (Schedule 1) | 3,210,687 | 3,189,560 |
| Excess of expenditure over revenue | (155,397) | (284,669) |
| Operating surplus, beginning of year | 847,600 | 1,132,269 |
| Operating surplus, end of year | $ 692,203 | $ 847,600 |

(See accompanying notes to the financial statements)

## AUDITOR'S REPORT

MACHINERY INSTITUTE

To the Members of the Legislative Assembly
Province of Saskatchewan

I have examined the statement of financial position of the Prairie Agricultural Machinery Institute as at March 31, 1983, and the statement of operations and operating surplus for the year then ended. My examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as I considered necessary in the circumstances.

In my opinion, these financial statements present fairly the financial position of the Prairie Agricultural Machinery Institute as at March 31, 1983, and the results of its operations for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

W. G. Lutz, F.C.A.
Provincial Auditor

Regina, Saskatchewan
May 12, 1983

# NOTES TO FINANCIAL STATEMENTS
March 31, 1983

## 1. Significant Accounting Policies

### Generally Accepted Accounting Principles

In accordance with generally accepted accounting principles, the Institute follows the accrual basis of accounting. Since the acquisition of fixed assets is financed primarily through grants received from the Provinces of Manitoba, Saskatchewan and Alberta, transactions affecting fixed assets are accounted for on a fund accounting basis. That is, in the Statement of Operations and Operating Surplus (Statement 2), all grants are recorded as revenue and the purchase of fixed assets are recorded as an expense. Assets acquired and accounted for as capital leases are expensed as the related principal portion of the obligations under the capital leases are reduced. Accordingly, no provision has been made for depreciation of fixed assets. To maintain accountability for fixed assets, they are recorded as a balance sheet asset with a corresponding entry to either "Equity in Fixed Assets" or "Obligations Under Capital Leases". As the principal portion of the "Obligations Under Capital Leases" are reduced, the related amounts are credited to "Equity in Fixed Assets".

### Unearned Subscription Income

Subscription revenue for published reports is taken into an unearned subscription account as received and is amortized to income as the revenue is earned. The portion which relates to future years is shown as unearned subscription income in the Statement of Financial Position.

### Funding

In accordance with an agreement signed by the Provinces of Manitoba, Saskatchewan and Alberta, funding is received in the following proportions:

| | |
|---|---|
| Manitoba | 20% |
| Saskatchewan | 45% |
| Alberta | 35% |

The Institute in accordance with the authority included in O.C. 1800/79 follows the policy of retaining the operating surplus earned in the year.

2. Incorporation

The Prairie Agricultural Machinery Institute was established as a body corporate under the Prairie Agricultural Machinery Institute Act, Chapter 2, 1973-74, Revised Statutes of Saskatchewan and is continued under Chapter P-21, Revised Statutes of Saskatchewan, 1978.

The purposes of the Institute include:

a) to test and appraise under actual or simulated working conditions, machinery sold or offered or intended for sale;
b) to undertake development work to improve and develop machinery for agricultural use;
c) to publish such reports, pamphlets and bulletins as are consistent with the intent of the Act.

3. Obligations Under Capital Leases

The following is a schedule of the minimum lease payments for several capital leases having implicit interest rates ranging from 13.5% to 16.6% which expire in 1988, together with the present balance of the total obligations under the capital leases:

| | |
|---|---|
| March 31, 1984 | $ 52,846 |
| March 31, 1985 | 52,846 |
| March 31, 1986 | 52,846 |
| March 31, 1987 | 52,846 |
| March 31, 1988 | 45,651 |
| Thereafter | 3,234 |
| | 260,269 |
| Less: amount representing interest | 80,869 |
| | $179,400 |

4. Equity in Fixed Assets

| | 1983 | 1982 |
|---|---|---|
| Fixed assets, March 31 | $5,332,411 | $4,833,050 |
| Less obligations under capital leases | 179,400 | — |
| Equity in fixed assets | $5,153,011 | $4,833,050 |

5. Comparative Figures

Certain changes have been made in the 1982 comparative figures to make them conform with the current year's presentation.

# Prairie Agricultural Machinery Institute
## SCHEDULE OF EXPENDITURE
## Year Ended March 31, 1983
(with comparative figures for the 1982 year)

| | Adminis-tration | Testing Equipment | Capital | 1983 Total | 1982 Total |
|---|---|---|---|---|---|
| Advertising and promotion | $ 38,764 | $ 13,608 | $ — | $ 52,372 | $ 15,169 |
| Bad debts | — | 7,295 | — | 7,295 | 5,332 |
| Building | — | — | 85,150 | 85,150 | 78,054 |
| Computer services | 48,910 | 5,448 | — | 54,358 | 50,422 |
| Contractual services | 15,271 | 14,858 | — | 30,129 | 67,763 |
| Employee benefits | 11,916 | 120,149 | — | 132,065 | 124,170 |
| Equipment - machinery to be evaluated | — | — | 17,390 | 17,390 | 44,575 |
| Equipment | — | — | 235,007 | 235,007 | 219,993 |
| Furniture and fixtures | — | — | 5,393 | 5,393 | 12,270 |
| Honoraria | 11,588 | — | — | 11,588 | 14,410 |
| Insurance, licenses and taxes | — | 77,529 | — | 77,529 | 75,843 |
| Interest expense - leases | — | 12,729 | — | 12,729 | — |
| Land improvements | — | — | 13,893 | 13,893 | 2,774 |
| Printing and binding | 130,474 | — | — | 130,474 | 250,605 |
| Professional and technical services | 6,562 | 311 | — | 6,873 | 9,926 |
| Reference material | 2,975 | 4,966 | — | 7,941 | 10,709 |
| Rent | | | | | |
| - building and equipment | — | 122,749 | — | 122,749 | 100,764 |
| - equipment to be evaluated | — | 138,600 | — | 138,600 | 105,047 |
| Repairs and maintenance | | | | | |
| - building and equipment | 1,096 | 58,651 | — | 59,747 | 50,452 |
| Salaries | 164,085 | 1,362,783 | — | 1,526,868 | 1,449,524 |
| Shop supplies | — | 115,406 | — | 115,406 | 125,188 |
| Stationery and office supplies | 43,607 | 46,219 | — | 89,826 | 108,312 |
| Telephone and telegraph | 22,527 | 37,746 | — | 60,273 | 52,510 |
| Travel and vehicle operations | 56,784 | 106,251 | — | 163,035 | 141,192 |
| Utilities | — | 53,997 | — | 53,997 | 53,834 |
| Vehicles | — | — | — | — | 20,722 |
| | $554,559 | $2,299,295 | $356,833 | $3,210,687 | $3,189,560 |

**PRAIRIE AGRICULTURAL MACHINERY INSTITUTE**

**Head Office:** P.O. Box 1900, Humboldt, Sask., S0K 2A0 (306) 682-2555
**Test Stations:** c/o LCC Campus, Lethbridge, Alta., T1K 1L6 (403) 329-1212
P.O. Box 1060, Portage la Prairie, Man., R1N 3C5 (204) 857-9701
P.O. Box 1150, Humboldt, Sask., S0K 2A0 (306) 682-5033